

U. S. ARMY-BAYLOR UNIVERSITY GRADUATE PROGRAM
IN HEALTH CARE ADMINISTRATION

A STUDY OF JOB-RELATED ACCIDENTS AT
WILLIAM BEAUMONT ARMY MEDICAL CENTER

A GRADUATE MANAGEMENT PROJECT
SUBMITTED TO THE FACULTY
IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF HEALTH ADMINISTRATION

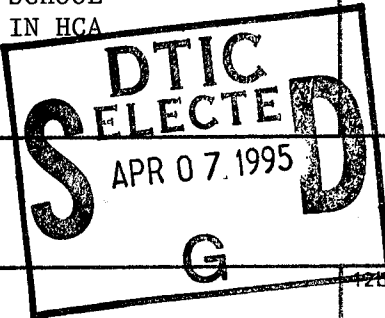
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Above all, praise, honor, and glory to the lord, Jesus Christ, from whom all blessings flow.

ABSTRACT

The purpose of this study was to provide an analysis of the job-related accidents logged on the Occupational Safety and Health Administration (OSHA) Form 200 at William Beaumont Army Medical Center (WBAMC) during Fiscal Years 1992 and 1993. Such an analysis will serve as a needs assessment for the hospital to set planning goals in the areas of safety management and training. Accident rates per 1000 employees at WBAMC were well under the OSHA-calculated industry average. Prevention of accidents through proactive policies and monitoring helped WBAMC to lower the number of reported accidents in Fiscal Year 1993. Periodic inspections of work areas, as well as frequent employee training sessions provided an increased awareness of safety in the hospital workplace. Some type of safety incentive or awards program is recommended to encourage employees to continue to work safely. Such a program can pay enormous dividends in the areas of claims cost avoidance, employee productivity and morale, as well as enhanced management-employee relations.

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CHAPTER 1

INTRODUCTION

Historically, the focus of health care interactions has centered around the medical needs of the patient. In recent years, there has been an increased realization of the potential danger to hospital employees themselves, as a result of numerous health and safety hazards which exist in the hospital environment.

The Occupational Health and Safety Act of 1970 expressed the goal of assuring that all working men and women are able to work in a safe environment. The employers' responsibility is to supply a place of work that is free from recognized hazards which might result in serious physical harm, or death, of an employee (OSHA 1993a).

In the high-technology world of medicine, it is necessary to focus much attention on maintenance of precision instruments, machinery, or other equipment. Often overlooked are those preventive measures which contribute to the maintenance and well-functioning of the hospital's human resources.

The typical acute care hospital contains numerous potential health and safety hazards which must be

recognized, evaluated, and controlled to safeguard hospital employees. Both regulatory agencies, such as the Occupational Health and Safety Administration (OSHA), and accrediting agencies, such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), actively set and monitor safety standards for the hospital environment.

Conditions which Prompted the Study

Increased OSHA reporting requirements have heightened awareness of the possible hazards faced by hospital workers in the performance of their duties. For the year 1990, the incidence rate of occupational illnesses and injuries was 10.6 per 100 full-time workers in the hospital industry, exceeding comparable rates in private industry (8.8). In addition, the incidence rate of lost-time injuries was 4.2 per 100 full-time hospital workers, which was also greater than that of private industry (4.1) (OSHA 1993b). Accurate identification of hazards, reporting of incidents, and facilitation of return to work as early as possible enable organizations to increase employee productivity and decrease costs of lost-time injuries (Morris 1993).

Statement of the Problem

Hospital accident rates exceed those of industry. A problem becomes how to reduce health-related absences and promote a safer workplace. Early identification of hazards and control of lost-time injuries should increase employee

health, morale, and productivity while decreasing costs of time lost and injury-connected claims. Armed with historical information on accidents in their hospitals, managers will be able to tailor education and training programs to provide a safer workplace and reduce the number of accidents on the job.

Literature Review

The Occupational Safety and Health Act

The Occupational Safety and Health Act (OSHA) was signed into law on December 29, 1970. The effective date was April 28, 1971 (OSHA 1992c). This act established penalties for violations of standards promulgated by the Secretary of Labor. It also established the National Institute for Occupational Safety and Health (NIOSH) within the Department of Health, Education, and Welfare. This was the most comprehensive piece of safety legislation ever enacted in this country (Boden 1989).

The principal goal of OSHA was to reduce the number of occupational safety and health hazards in the workplace by encouraging joint efforts by labor and management to reduce the amount of injuries and disease arising from employment conditions. Appropriate reporting procedures were established and a rigorous enforcement program and inspection procedures were created (OSHA 1992c).

According to OSHA (1993b), an effective safety and health management program must have the support of

management, participation of employees, a safety committee to monitor and report trends, and a regular program of review and evaluation. A multidisciplinary safety team should include: industrial hygiene; occupational health nursing; occupational medicine; physical therapy; and infection control; as well as the hospital safety manager.

Potential health and safety hazards in the hospital environment have been classified into the following categories: biological; ergonomic; chemical; psychological; and physical (OSHA 1993b). Each of those areas will be discussed briefly in turn.

Biological Hazards

Biological hazards include infectious agents such as bacteria, viruses, or parasites which are transmittable to the worker through contact with infected patients or their bodily secretions. Over 5.6 million health care workers (and those in related occupations) are at risk of exposure to bloodborne pathogens such as human immunodeficiency virus (HIV), hepatitis B virus (HBV), or other infectious materials (OSHA 1992a). The most significant measure to restrict the transmission of HIV, HBV, or other infectious materials is the use of "universal precautions." In other words, all blood and other bodily fluids from acute care patients are considered to be infectious and handled accordingly (OSHA 1992a).

Ergonomics

Ergonomics is the study of matching the appropriate workplace design with human behavioral and biological characteristics (OSHA 1993b). Low back pain is one of the most prevalent occupational injuries, and most frequently results from lifting. Many mechanical back injuries among hospital staff are preventable through education, back-strengthening exercises, and the use of mechanical lifting devices. Chronic back pain is extremely costly in terms of lost-time and treatment expenses, and is more effectively managed through prevention rather than treatment (Shires 1993).

Hazard Communication

There are many chemicals in the hospital which, in certain forms, are potentially irritating, or toxic, to the body systems. Some of these chemicals include medications, mixed solutions, or gases (OSHA 1993b). The Hazard Communication (HAZCOM) standards require the evaluation of possible hazards of all chemicals in U.S. workplaces and the notification of all affected employees as to the potential results of exposure. Chemical manufacturers are required by law to produce Material Safety Data Sheets (MSDSs) which convey all hazard information to potentially exposed persons. Employers must implement a HAZCOM program and pass this information on to employees through labelling and the availability of MSDSs (OSHA 1992b).

Psychological Factors

Psychological factors are those which create stress, emotional strain, or other types of interpersonal problems. Job stress and shiftwork are the most common examples of psychological factors (OSHA 1993b). Careful scheduling, nutritional meals, and ensuring adequate sleep patterns can lessen the adverse effects of continuous shiftwork. Educating employees on these issues should help reduce related health problems (Shires 1993).

Physical Factors

Physical factors are those which can cause tissue trauma such as radiation, lasers, noise, electricity, or extreme temperatures (OSHA 1993b). The OSHA standard on the control of hazardous energy (lockout/tagout) requires that, before services or maintenance, machinery must be turned off and disconnected from the energy source, and the energy-isolating device must be locked out or tagged out. This requires the application of appropriate locks or tags which prevent the piece of equipment from connection to the energy source during repairs or maintenance. Thorough employee training programs and periodic inspection of procedures is mandatory under this standard (OSHA 1991).

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO)

JCAHO has made Plant, Technology, and Safety Management an integral part of the accreditation process. Accredited

organizations are required to maintain a safe environment for patients and visitors, as well as employees. The safety management program described in the JCAHO manual focuses on a written program. Each department should have a written safety plan specific to their area of operations (JCAHO 1993).

A working Safety Committee, with the Safety Manager appointed by the CEO, is also mandated by the Commission. This committee must consist of members from administration, clinical, and support services. It must meet at least quarterly to analyze safety management issues and report its findings to the governing body (JCAHO 1993).

Education is also a key component of the JCAHO's requirements. All employees must be provided instruction on any job-specific hazards, in addition to general safety information for the organization (JCAHO 1993). This education is critical not only to workers in clinical areas, but in support areas as well, such as housekeeping and linen management (Elder 1993).

Benefits of a Hospital Safety Program

Research shows that programs implemented to control health-related absenteeism can be effective, which helps to reduce the direct and indirect costs associated with employee absence and injury-related claims. Some key components of an effective absenteeism control program include: enhancing return to work opportunities; thorough

job analysis and design; standards for expected time off by injury category; clear lines of responsibility for communicating with employees who are absent for health reasons; communication with health care providers; and an effective information system (Reid and Smith 1993).

Educational intervention can also be effective in preventing workplace injuries. Some principles of promoting the concept of health at the worksite are to: focus on self-help and individual responsibility; teach integration of health into all aspects of work life; support corporate efforts to improve health among the work force; measure costs and outcomes of health programs; encourage employee involvement in developing safety strategies; increase efforts toward employee health promotion; and promote ethical decision-making in the workplace (Rogers 1990).

The National Safety Council (1991) published a list of the benefits of safety and health awareness in healthcare institutions. Those benefits include: improved morale; reduced absenteeism and turnover; increased productivity; enhanced services to patients and their families; less facility down-time; lower insurance premiums; avoidance of negative publicity; reduced worker's compensation payments; and better compliance with law and regulatory requirements.

The Haddon Injury Control Model

One study in particular shifted the focus of its research away from the accident itself, to the limitation of

injury following the accident. Hayes (1990) published an article in England which describes the Injury Control Model, a conceptual framework for the study of injuries proposed by William Haddon.

This model identifies the variable factors which contribute to the outcome of an injury-producing event. Haddon's central premise was that: "Injuries are not 'accidents, acts of fate, or freak occurrences.' They are predictable events with an etiology, natural history, and understandable course." (Hayes 1990). Therefore, injury-causing events, and the injuries themselves, are preventable.

The focus of the model was on the injuries themselves, not the accidents. Haddon refers to the link between the accident and the injury as a 'causal agent', which is defined as an energy source such as mechanical, thermal, electrical, or chemical. The central premise of the Injury Control Model states that injuries result from the interaction between an agent, a host, and the environmental factors present during the exchange of energies. The sequence of these events breaks down into the pre-event, event, and post-event phases. These factors together form Haddon's Injury Control Matrix (See Figures 1 and 2).

Managerial strategies to limit or prevent injuries stem from the understanding of the roles of the agent, host, and environment in the pre-event, event, and post-event phases.

This model emphasizes the importance of exploring all possible contributory or causal factors during each of the phases of an injury-causing event. This allows for brainstorming and implementation of preventive measures which can prevent, or limit the extent of the injury. Behavioral measures, such as changing procedures, are usually less effective than passive measures (requiring no change in employee behavior) such as placing physical barriers between workers and equipment, eliminating high risk tasks, or installing automatic protective devices (Hayes 1990).

Pre-event Phase

Control measures in the pre-event phase deal with the prevention of the injury-producing event. Such measures include: physically separating the employee from the hazard; preventing the creation of a hazardous situation; reducing the amount of the hazard; preventing the release of the hazard; or modifying the rate of release of the hazard (Hayes 1990).

Event Phase

During the event phase, the focus is on preventing or limiting the extent of the injury itself. Control measures in this phase include: passive measures as discussed earlier, such as fire walls or other barriers; modifying a hazard, such as rounding off sharp corners; or increasing an individual's resistance to injury through education and

wellness programs (Hayes 1990). Another example of using a barrier in a health care setting would be the use of universal precautions when handling bodily fluids.

Post-event Phase

Interventions in the post-event phase focus on prompt emergency care, first aid, or stabilization of the injured worker. The goal is to minimize the extent of the injury which has already taken place. Control measures in the post-event phase include: quickly evaluating the extent of the injury, countering continued injury or limiting its extent; providing definitive care after the individual has been stabilized; and rehabilitative or restorative care to try and return the individual to an optimal level of functioning (Hayes 1990).

Haddon's Injury Control Matrix uses two types of tables to organize the facts surrounding an injury-producing event. The Injury Matrix (Figure 1) lists the known facts about the accident (or type of accident) in matrix format. The Haddon Matrix (Figure 2) lists factors for possible implementation in the pre-event, event, and post-event phase of an accident situation to limit the effects of the injuries received.

=====

				Exposure	Physical	Socio-
				Event	Environ-	cultural
Host	Injury	Agent	Vector		ment	Environ-
						ment

The matrix is filled out as follows for each major type or category of injury being studied:

Host - description of the physical characteristics of the person sustaining the injury such as: male/female; age; physical condition (obesity, etc.); skeletal structure

Injury - describe the exact type and extent of injury sustained such as: fracture; sprain; strain, etc.

Agent - what exactly caused the accident/injury

Vector - by what means the agent was conveyed to produce the accident/injury

Exposure Event - what actually took place during the accident, for example: slip; trip; fall; etc.

Physical Environment - what physical factors contributed to or caused the accident/injury such as: oil/grease on floor, equipment failure, etc.

Sociocultural Environment - factors such as: attitudes towards job; pressures to perform; cutting corners to save money; etc.

=====

Figure 1. The Injury Matrix (Hayes 1990).

=====			

Phase	Human Factors	Environmental & Engineering Factors	Social, Legal, & Political Factors

Pre-Event			
Event			
Post-Event			

This matrix is used to identify strategies which could limit the extent of injuries caused by accidents in the workplace. This is a method of brainstorming what actions could possibly be taken to prevent, or lessen the impact of, injury-producing situations. All strategies need not be implemented, if they are deemed impractical, or are not cost-beneficial. Environmental and engineering factors refer to those types of corrections or modifications to the environment which could be changed to prevent recurrence of certain injury-producing events. Social, legal, and political factors are those which can be modified by policy changes such as: more reasonable production quotas; training; injury investigations; OSHA inspections; etc.

=====

Figure 2. The Haddon Matrix (Hayes 1990).

Purpose

The purpose of this study was to provide an analysis of the numbers, types of accidents and types of injuries which occurred at William Beaumont Army Medical Center over a two-year period. Knowing the types and quantities of job-related accidents and injuries provides managers with an increased awareness of the value of safety training and preventive measures as a combat multiplier. This study will serve as a needs assessment in the area of safety

management, providing information on strengths and weaknesses in our current program. Such information will allow managers to focus their efforts in the areas of safety education, training, accident prevention and injury control.

Increasing awareness of safety-related considerations among managers can help to facilitate the paradigm shift from "mission first" to "safety first". It is often common practice to set mission accomplishment (at all costs) as the primary goal, as opposed to assuring a safe working environment, and then proceeding with the mission. A goal of this study was to increase hazard awareness, identification, and reporting by providing summary information of accident rates and types of incidents.

CHAPTER 2

METHODS AND PROCEDURES

Data for this study were limited to those accidents recorded on the OSHA Form 200 log during Fiscal Years 1992 and 1993 at William Beaumont Army Medical Center in El Paso, Texas. The Safety Manager, Mr. Bob Parkin, supplied these data from his records. A copy of the original data set used in this study is located in Appendix 1.

Security and confidentiality of the information used in this study were maintained at all times. Names, ranks, and Social Security numbers of WBAMC employees were not used at any time during this study. The data were used only by the researcher, and only for the purpose of this study. Ethical and privacy considerations for the employees were omnipresent throughout this study.

These data were assumed to be accurate based on the reporting requirements of the OSHA Form 200. The data used in this study were the same data which OSHA uses to maintain its record of the reportable accidents at WBAMC. The Safety Manager, as well as the Command Group of WBAMC, have expressed faith in the accuracy and validity of the data contained in the OSHA Form 200. Worker's Compensation claim forms are processed separately from the OSHA Form 200

reports. Therefore, it is believed that the OSHA Form 200 is correct and that there is little or no incentive to exaggerate entries on this form. All entries to the OSHA Form 200 are backed up by the actual incident reports on file in the Safety Office at WBAMC.

A work-related accident is reportable on the OSHA Form 200 if any one of the following four conditions result from the accident: medical treatment (not merely first aid); loss of consciousness; restriction of work or motion; or transfer to another job (OSHA 1986).

The OSHA Form 200 requires the following information pertaining to an accident: case number; date; name; occupation; department; nature of injury or illness; number of lost-time days; and the number of restricted workdays. Private equivalents to the log are authorized, as long as they contain at least the required information (OSHA 1986). The WBAMC OSHA Form 200 log also contains: category (military, civilian, contract, or student); Social Security number; rank; location of accident; type of accident; and causal factors of the accident.

As stated previously, names, ranks, and Social Security numbers of those who reported accidents were not used in this study. The names were deleted from the log and replaced by the category 'gender'. The dates used for purposes of this study contained only the month and year of the accident.

The data set was then limited to include only those accidents which took place in the work environment at WBAMC. Accidents that occurred outside the hospital building itself, though recorded on the OSHA log, were not included in this study. Those accidents reported by employees of the Dental Activity (DENTAC) and the Veterinary Service were not considered as a part of this study.

It is necessary to distinguish the difference between an accident which is 'in the line of duty' and an accident which is work-related. In the military, a soldier can have an accident outside of his/her assigned workplace which is considered to be 'in the line of duty,' but is not job-related. A soldier who suffers an accident away from the worksite is eligible to receive medical care if the accident is deemed to be 'in the line of duty.' For the purposes of this study, those accidents which occurred away from the worksite were not considered in the analysis. The intent of this study was to examine only those accidents which occurred within the confines of the hospital working environment.

In order to standardize the data for analysis, only major department headings in the hospital were used. The following is the list of department headings which were used in this study: Nursing; Logistics; Psychology; Pathology; Surgery; Obstetrics/Gynecology (OB/GYN); Nutrition Care; Pharmacy; Patient Administration; Pediatrics; Personnel;

Radiology; Medicine; Resource Management; Primary Care; Residential Treatment Facility; Information Management; Preventive Medicine; and Clinical Investigation. Employees of any wards, clinics, or other subordinate activities were grouped under these major department headings.

The type of accident was grouped by categories on the OSHA Form 200. The following categories of accidents were recorded: bodily reaction; caught between; exposure; lifting; motor vehicle accident; needlestick; pulling; sharp; slip/trip/fall; splash; stress; struck against; struck by; and miscellaneous.

The type of injury was also categorized for reporting purposes as follows: back; burn; eye; fall; fire; inhalation; motor vehicle accident; needlestick; sharps; and miscellaneous (HSC 1992).

Motor vehicle accidents were not considered in this study as they occurred outside of the WBAMC worksite.

As a result, the following categories of information were considered in this study: category (civilian, military, contract, or student); date of accident (month and year); gender; department; type of accident; type of injury; number of lost work days; and number of restricted work days.

The data provided on the OSHA Form 200 log were tabulated, by category, to produce summary information in each of the areas examined. A copy of the complete

tabulated data set is located in Appendix 2. A summary of these findings appears in Chapter Three, "The Results."

The two most common injury-producing events were incorporated into both the Injury Matrix and the Haddon Matrix. This provided a basis for suggesting possible courses of action which could reduce the effects of on-the-job accidents at WBAMC. Managers of departments where certain injuries or types of accidents are common can use these matrices as planning and brainstorming tools for their sections. These matrices can also be used to assist managers in soliciting ideas from their employees, who may have a more in-depth knowledge base of possible unsafe conditions encountered on their jobs.

A forecasting tool was used to attempt to predict the number of accidents which may occur in the future. The total number of reported accidents was grouped into quarterly periods. A predicted number of quarterly accidents was obtained using the method of exponential smoothing (with a linear trend). With the knowledge of how many total accidents are forecasted (based on past data), performance in future quarters can be assessed and compared to the prediction.

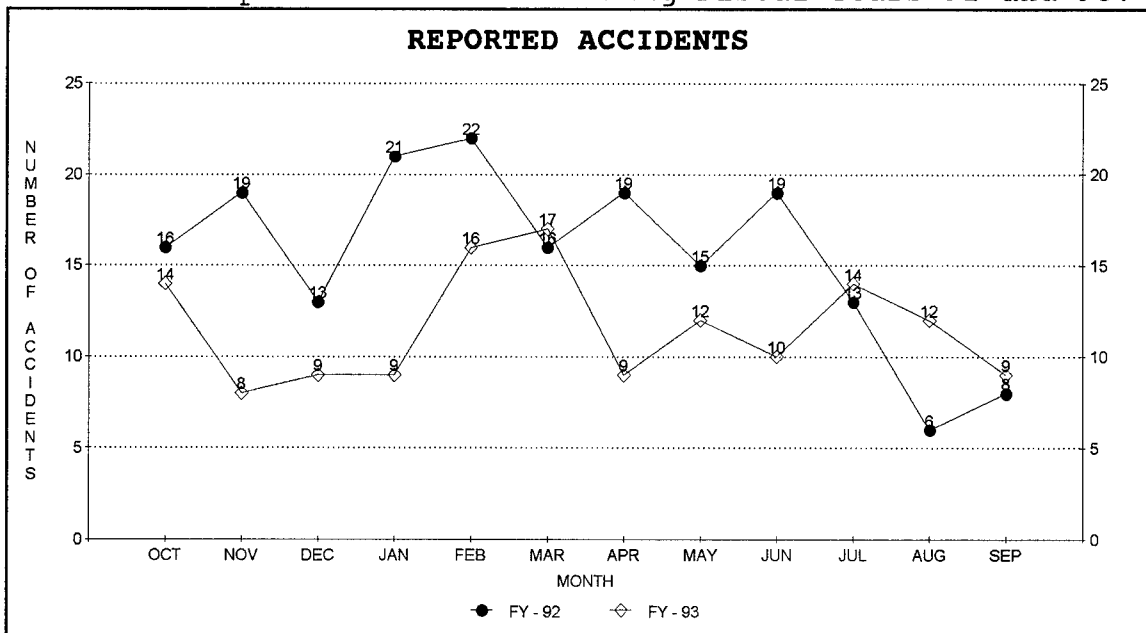
CHAPTER 3

THE RESULTS

Overall Accidents

The overall number of reported accidents in FY 1992 was 187. In FY 1993, there were 139 reported accidents. Table 1 shows the number of accidents by month in both years. The mean number of accidents per month in FY 1992 was 15.5, while in FY 1993, it was 11.6. The accident rate per 100 full-time employees (or full-time equivalents) at WBAMC was 8.9 in FY 1992, and 6.6 in FY 1993. In both years, the accident rate at WBAMC was less than the health care industry average of 10.6 (OSHA 1993b).

Table 1. Reported Accidents during Fiscal Years 92 and 93.



A detailed listing of the data used in this study from the WBAMC OSHA Form 200 for Fiscal Years 1992 and 1993 is included in Appendix 1.

Lost and Restricted Work Days

The number of lost work days decreased from FY 1992 to FY 1993 (See Table 2). The average number of days lost per case decreased as well. Restricted work days showed a negligible increase in FY 1993. Effective emergency training of employees, prompt medical attention, and communication with the employee during time health-related absences constitute the foundations of an effective return-to-work program. The goal of this type of program is to prevent or lessen employee absences due to job-related accidents (Morris 1993).

Table 2. Lost and Restricted Work Days for FYs 92 and 93.

FY	Lost Work Day Cases	Total Lost Work Days	Average Per Case	Restricted Work Days
1992	16	150	9.4	101
1993	10	69	6.9	102
Mean	13	109.5	8.15	101.5

Category of Employees

WBAMC employs approximately 2100 personnel at any one time. This number represents the total military and civilian workforce permanently assigned to WBAMC. Although WBAMC is the site for many medical education programs, students in these programs are counted into the aggregate number of employees. The category "students," as referred

to on the OSHA Form 200, refers to students who are permanently assigned to other military units, but are training at WBAMC in a medical program. These personnel are counted separately. The number of contracted employees fluctuates, but constitutes only a small percentage of the total workforce. The breakdown of job-related accidents by category is displayed in Table 3.

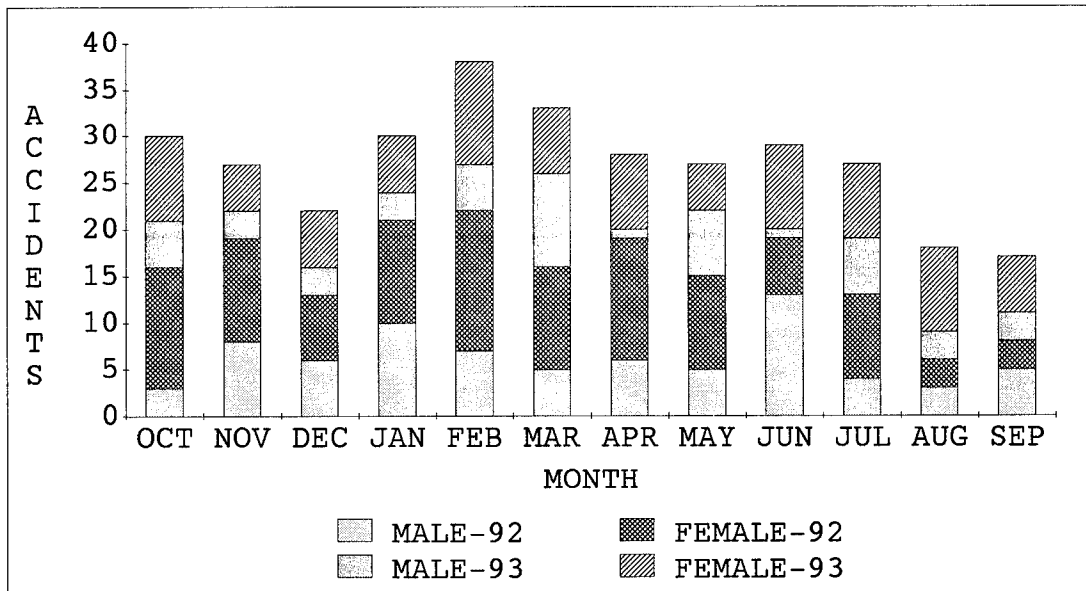
Table 3. Accidents by Category.

Category	1992	1993
Military	63	40
Civilian	109	88
Contract	12	9
Student	3	2

Gender

In Fiscal Year 1992, females reported 112 accidents (total number of females assigned was 979), while males reported 75 (total number of males assigned was 1276). In Fiscal Year 1993, females reported 89 accidents (917 assigned), while males reported 50 (1205 assigned). These figures represent a 21% drop in the number of accidents for females and a 33% drop for males. (See Table 4) Specific figures for each month by gender are presented in Appendix 2.

Table 4. Accidents by Gender



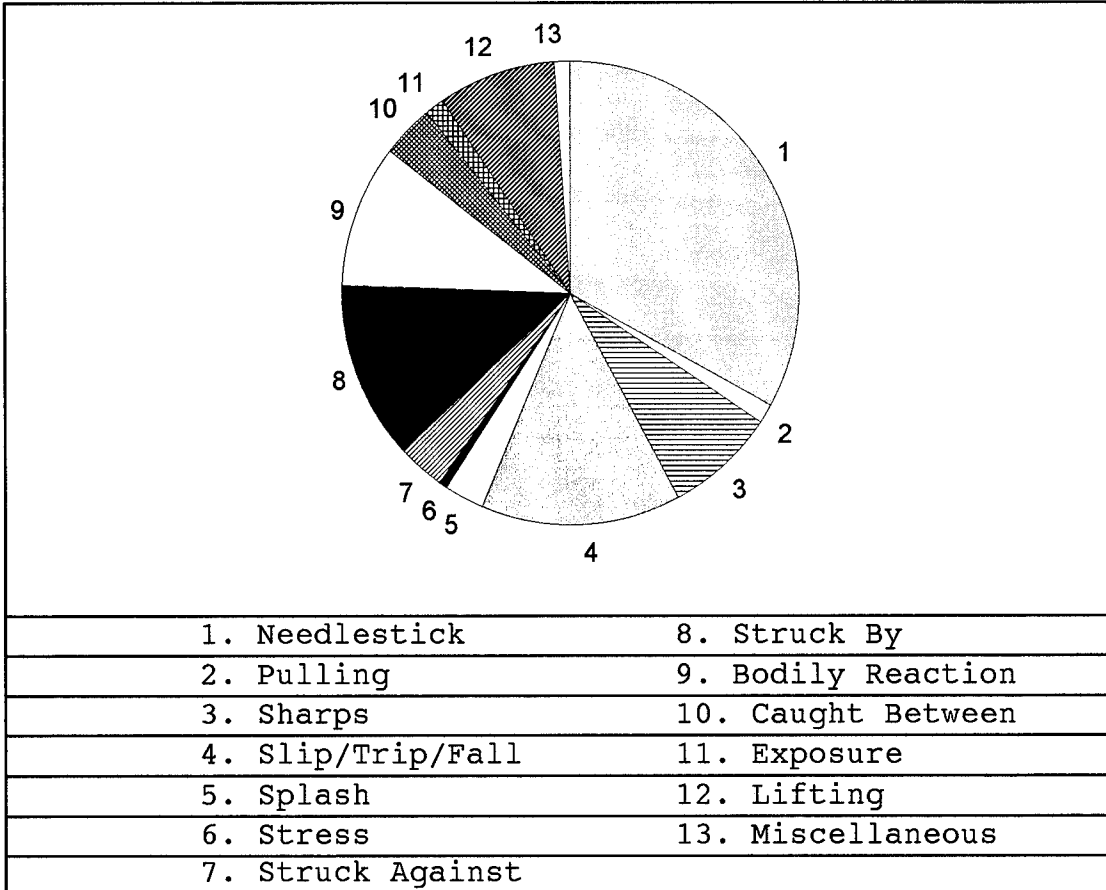
Type of Accident

Needlesticks were, by far, the most commonly reported type of accident during both FY 1992 and FY 1993. This type of accident is very common in the healthcare environment. Health care professionals conduct a large volume of procedures on a daily basis. Although they are aware of the dangers of needlestick injuries, most people are less acutely aware of it during each repetitive incidence of a procedure. In addition, the urgency of emergency procedures usually diverts the attention of health care professionals to other matters (Hunt 1990).

In Fiscal Year 1993, the number of reported accidents in general decreased by 25% from FY 1992. The most significant reduction was in needlesticks, which showed

nearly a 50% decline. This was due to an aggressive training program by the Safety Manager, the Infection

Table 5. Percentage of Accidents by Type. (FYs 1992 & 1993).



Control Nurse, and the Department of Nursing. Also, the use of needleless injectors and safety syringes contributed to the decline of needlestick incidents.

Table 5 graphically illustrates the proportion of each type of accident over the two-year period.

Type of Injury

Type of injury differs from type of accident in that the same type of accidents can have varying injurious

results. For the purposes of this category, only certain types of injuries are recorded. These injuries are: back; burn; eye; fall; fire; inhalation; needlestick; sharps; and miscellaneous. Table 6 summarizes the types of injuries reported at WBAMC in Fiscal Years 1992 and 1993.

Table 6. Type of Injury.

	FY 1992	FY 1993
Back	16	18
Burn	4	0
Eye	9	5
Fall	22	18
Needle	71	36
Inhalation	0	0
Sharps	17	8
Miscellaneous	51	54

These types of injuries are tracked as separate categories because they have been shown to produce the most lost-time and restricted-duty work days among employees (HSC 1992).

Number of Accidents by Department

It is essential for managers to have an accurate record of what types of accidents and injuries have occurred in their departments. This knowledge will aid supervisors in correcting unsafe situations and focusing training efforts.

The Department of Nursing is, by far, the largest department in WBAMC. All personnel who provide nursing care at any level are assigned to the Department of Nursing. For example, a Licensed Practical Nurse working in Pediatrics, a Registered Nurse working in OB/GYN, and a Nurse's Aid working in the outpatient clinic are all assigned to the

Department of Nursing. It is necessary to understand this arrangement, due to the fact that the Department of Nursing reported the majority of accidents at WBAMC. Table 7 shows the numbers of accidents by department, lost work days (LWD), and restricted work days (RWD) by WBAMC department.

Table 7. Numbers of Accidents by Department.

Department	FY 1992			FY 1993		
	Total	LWD	RWD	Total	LWD	RWD
Nursing	101	61	11	68	55	20
Logistics	17	2	14	8	5	30
Psychology	2	0	15	0	0	0
Pathology	14	0	0	10	0	0
Surgery	8	4	6	4	0	0
OB/GYN	2	0	0	0	0	0
Nutrition	23	52	34	18	1	19
Pharmacy	2	0	0	0	0	0
Patient Admin.	7	31	0	10	8	21
Pediatrics	1	0	0	0	0	0
Personnel	1	0	0	1	0	0
Radiology	2	0	7	11	0	5
Medicine	5	0	14	1	0	0
Resource Mgt.	1	0	0	0	0	0
Primary Care	1	0	0	0	0	0
Res. Treat. Fac.	0	0	0	1	0	0
Information Mgt.	0	0	0	2	0	2
Preventive Med.	0	0	0	4	0	0
Clinical Invest.	0	0	0	1	0	5
WBAMC TOTAL	187	150	101	139	69	102

A more detailed identification of specific numbers of job-related accidents by department, type of accident, and type of injury can be found in Appendices 3 (FY 1992) and 4 (FY 1993).

Forecasted Number of Accidents

Another application that would be helpful to managers is a tool to forecast the number of accidents which may occur in the future. Avoiding accidents altogether is, by far, preferable to even the best state-of-the-art treatment program.

To provide forecast data, a software package, QSB Plus, was applied. The data were grouped on a quarterly basis and entered into the program. The best-fit forecasting solution was single exponential smoothing with a linear trend. This was the best model because it resulted in the lowest mean absolute deviation (MAD) of all the models. The mean number of reported accidents per quarter in Fiscal Years 1992 and 1993 was 40.75. The forecasted number of accidents per quarter, based on the trend established in Fiscal Years 1992 and 1993, is 35.24. This forecast provides further reason to expect the number of accidents at WBAMC to continue to decline. The forecasted number also provides a benchmark by which to gauge the future safe job performance by employees at WBAMC. The forecast calculation printout is contained in Appendix 5.

CHAPTER 4

DISCUSSION

The downward trend in job-related accidents at WBAMC would indicate that an effective prevention and monitoring program is in place. It is important to stress that no matter how good the accident statistics may appear, every accident must be considered preventable and every workplace must be rendered as free of hazards as possible.

The Haddon Injury Control Matrix provides a useful conceptual framework for managers and employees to identify various factors which may contribute to the outcome of an injury-causing event in the workplace. In addition, it can be used to provide structure and guidance in implementing safety evaluation and control programs within the organization.

The two most frequently reported types of accidents at WBAMC in Fiscal Years 1992 and 1993 (combined) were: needlesticks, with 107 reported incidents; and slip/trip/fall, with 46 reported incidents.

The Injury Matrix, as well as the Haddon Matrix, applied to both needlesticks and slip/trip/fall accidents appear in figures 3-6.

=====						

Host	Injury	Agent	Vector	Exposure Event	Physical Environ-ment	Socio-cultural Environ-ment

Employee	Needle-	Needle	Needle	Employee	Needle used	Time
-age	stick	slipped	breaks	struck by	during	constraints
-gender		or was	employee's	needle	patient	
-category		disposed	skin		care	Attitude
-training		of				toward
		improperly				patient care

Figure 3. Injury Matrix: Needlesticks.

Phase	Human Factors	Environmental & Engineering Factors	Social, Legal, & Political Factors

Pre-Event	training	sterile environment	staffing levels
	infection control procedures	safety needles	standard operating procedures
		disposal equipment	
Event	awareness/attention to detail		proper supervision
Post-Event	immediate treatment in the ER	first aid equipment on hand	ensure proper reporting and treatment
	inform supervisor		
	secure environment from further hazard		access to immediate medical care

Figure 4. The Haddon Matrix: Needlesticks.

=====						

Host	Injury	Agent	Vector	Exposure Event	Physical Environ-ment	Socio-cultural Environ-ment

Employee	contusions	gravity	floors	slip	water	command
-age	strains		stairs	trip	on floors	emphasis
-gender	sprains	kinetic		fall		on safety
-physical	fractures	energy			floors	housekeeping
condition					over-waxed	costs
					supplies, etc.	employee
					on floor	satisfaction

Figure 5. Injury Matrix: Slip/Trip/Fall.

=====			

Phase	Human Factors	Environmental & Engineering Factors	Social, Legal, & Political Factors

Pre-Event	safety training-	non-skid surfaces	regular
	increased awareness	on floors	inspections
			and monitoring
	safe work/clean-up	lighting	
	practices		supervision
	non-skid shoes	proper storage	
		for equipment	
		and supplies	
Event	padded	energy-absorbing	immediate
	clothing	floors	medical
	optimum physical	emergency	treatment
	conditioning	notification	
	of employees	system	
Post-Event	first aid	correct	injury
		unsafe	reporting and
		conditions	investigation

Figure 6. The Haddon Matrix: Slip/Trip/Fall.

It is not possible to prevent every accident from occurring. Using tools such as the Haddon Matrix, it is possible to limit the extent of injury following an accidental occurrence. Increased efforts in the areas of injury prevention and control, even in the face of continued resource constraints, can pay large dividends to employers. Reduction of lost-time and other health-related absences increases employee productivity and satisfaction, and can enhance the quality of management-employee relations. The establishment of a safe working environment, proper monitoring and controls, and proactive safety training and policies are truly a "win-win" situation for everyone.

Total Quality Management and Accident Prevention

William Beaumont Army Medical Center has aggressively embraced the principle of Total Quality Management, as espoused by W. Edwards Deming. Total Quality Management was designed to be an on-going, continuous process. The Deming/Shewart cycle is an integral part of this process which can be used by managers on a proactive basis. The cycle consists of four phases: Plan; Do; Check; Act (Deming 1982).

These principles can easily be applied to the prevention of accidents in the workplace. The first step is to identify those factors which pose a possible threat to employee safety, such as employee health status or environmental hazards.

During the Plan phase, managers should review safety data to identify and analyze trends and areas needing improvement. The next step is to set goals in accident prevention, training, and cost containment. The information provided by the data analysis should provide a framework for effective planning and goal-setting.

The implementation phase (Do) is where the strategies developed previously are put into motion. Training programs, equipment purchases, environmental modifications, and cost control strategies are all examples of action plans in execution.

The Check phase is an on-going review of the success of the plans previously implemented. Continuous monitoring and evaluation of the impact (positive or negative) and effectiveness of previously developed strategies will provide information to direct future efforts.

The Action phase is also continuous. Based on data collected, strategies should be reassessed and modifications made as necessary.

A proactive stance on safety management and control of costs related to on-the-job accidents can save organizations from needless loss of time, health, and productivity of employees. In addition, the avoidance of lawsuits and other legal hassles, such as OSHA violations, will allow health care organizations to continue to focus on providing top quality medical care at a reasonable cost.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

The establishment of an effective safety and accident prevention program is not only a legal obligation, but a moral one. Even outside of the regulatory guidance of OSHA, employers have an ethical responsibility to provide employees a safe environment in which to perform their duties.

Safety and the prevention of accidents are everyone's responsibility. Every individual must be alerted to possible hazards in their place of work, and trained in safe operations, accident prevention, and first aid. Although the Safety Manager oversees the Safety Program, department and section supervisors must ensure that every employee is properly trained in their duties and apprised of possible hazards on the job and how to react to them.

Most organizations pay lip service to the concepts behind a safety management program, but very few actually put these objectives into practice.

The objectives of a safety management program should include: reduction of accidents; limiting the number and extent of injuries; saving costs associated with injury and lost-time claims; increased productivity; and increased overall morale and effectiveness of the organization. Every

employee should be the "safety officer" in his/her individual work area.

Safety policies have typically been reactive, rather than proactive. It is standard practice to regulate or otherwise handle problems after they have appeared, not before. In a Total Quality Management environment, proactive planning and policies are encouraged. Tools such as the Haddon Matrix can assist managers in setting policies and procedures to limit or pre-empt accidents, instead of merely reacting to them. Some accidents will always happen, and it is important to be prepared for those events, but accident avoidance planning should be emphasized. It is simply by human nature that we are more reaction-oriented, rather than proaction-oriented. Education can help to transform attitudes toward safety and accident prevention into the proactive mode.

The data analyzed in this study have shown William Beaumont Army Medical Center to have an effective safety management program in place. The employees and managers of WBAMC should be commended for their efforts in this area. Continuous safety education and monitoring contributed to the reduced number of job-related accidents at WBAMC. Everyone must get involved for this trend to continue.

Some type of safety incentive, awards, or suggestion program would be an effective tool to help maintain the positive trends shown in incidences of job-related accidents

at WBAMC. In addition to continued safety education and monitoring, the benefits of such a program cannot be overstated.

The advantages of a safety incentive/awards program would emerge in the form of increased employee productivity, decreased absenteeism, and improved management-employee relations. Implementation of such incentives would pay off quickly in the form of cost control and claims avoidance. It is not unusual for Worker's Compensation claims to drive an organization's cost of doing business unreasonably high.

In conclusion, the Safety Manager, department supervisors, and employees at WBAMC should be encouraged to keep up the good work and always remember to "think safety" in all of their endeavors.

Appendix 1 - Fiscal Years 1992 and 1993 OSHA Form 200 Log

data file: OSHA_200.STA [326 cases with 8 variables]

1	2	3	4	5	6	7	8
CAT	DATE	GENDER	DEPT	TYPEACC	INJTYPE	LWD	RWD
1 CIV	OCT91	MALE	NURSING	NEEDLE	NEEDLE	0	0
2 CIV	OCT91	FEMALE	NURSING	NEEDLE	NEEDLE	0	0
3 CIV	OCT91	FEMALE	LOG	SL_TR_FA	FALL	0	0
4 CIV	OCT91	FEMALE	NURSING	STRUCKBY	MISC	0	0
5 CON	OCT91	FEMALE	LOG	NEEDLE	NEEDLE	0	0
6 CIV	OCT91	FEMALE	PSYCH	SL_TR_FA	FALL	0	15
7 CIV	OCT91	FEMALE	NURSING	NEEDLE	NEEDLE	0	0
8 CIV	OCT91	FEMALE	NURSING	STRAGNST	MISC	0	0
9 CIV	OCT91	FEMALE	PATH	STRUCKBY	EYE	0	0
10 STU	OCT91	FEMALE	NURSING	NEEDLE	NEEDLE	0	0
11 CIV	OCT91	FEMALE	SURG	SPLASH	EYE	0	0
12 MIL	OCT91	MALE	NURSING	LIFTING	BACK	0	0
13 MIL	OCT91	FEMALE	OB_GYN	NEEDLE	NEEDLE	0	0
14 MIL	OCT91	FEMALE	PATH	SHARP	SHARPS	0	0
15 MIL	OCT91	FEMALE	NURSING	NEEDLE	NEEDLE	0	0
16 MIL	OCT91	MALE	NURSING	NEEDLE	NEEDLE	0	0
17 CIV	NOV91	MALE	LOG	STRUCKBY	EYE	0	0
18 CIV	NOV91	FEMALE	NURSING	SPLASH	EYE	0	0
19 CIV	NOV91	MALE	LOG	STRUCKBY	MISC	0	0
20 CIV	NOV91	FEMALE	NCD	CAUTBETW	MISC	0	0
21 MIL	NOV91	MALE	NURSING	NEEDLE	NEEDLE	0	0
22 MIL	NOV91	FEMALE	NURSING	NEEDLE	NEEDLE	0	0
23 MIL	NOV91	FEMALE	NURSING	LIFTING	BACK	0	5
24 MIL	NOV91	FEMALE	NURSING	LIFTING	BACK	0	0
25 MIL	NOV91	FEMALE	NURSING	SPLASH	EYE	0	0
26 MIL	NOV91	FEMALE	PATH	NEEDLE	NEEDLE	0	0
27 MIL	NOV91	MALE	SURG	NEEDLE	NEEDLE	0	0
28 MIL	NOV91	MALE	NURSING	NEEDLE	NEEDLE	0	0
29 CON	NOV91	FEMALE	NURSING	NEEDLE	NEEDLE	0	0
30 CIV	NOV91	FEMALE	NURSING	MISC	MISC	0	0
31 CIV	NOV91	MALE	NCD	MISC	MISC	0	0
32 CIV	NOV91	MALE	PHARM	SL_TR_FA	FALL	0	0
33 CIV	NOV91	FEMALE	PAD	SL_TR_FA	FALL	0	0
34 CIV	NOV91	MALE	PEDS	NEEDLE	NEEDLE	0	0
35 MIL	NOV91	FEMALE	NURSING	STRUCKBY	MISC	3	0
36 CIV	DEC91	FEMALE	PHARM	BODREACT	MISC	0	0
37 CIV	DEC91	MALE	NCD	STRUCKBY	MISC	0	0
38 MIL	DEC91	FEMALE	NURSING	NEEDLE	NEEDLE	0	0
39 MIL	DEC91	MALE	NURSING	NEEDLE	NEEDLE	0	0
40 MIL	DEC91	MALE	PATH	SHARP	SHARPS	0	0
41 MIL	DEC91	MALE	NURSING	NEEDLE	NEEDLE	0	0
42 MIL	DEC91	MALE	NURSING	NEEDLE	NEEDLE	0	0
43 CIV	DEC91	FEMALE	NURSING	NEEDLE	NEEDLE	0	0
44 CIV	DEC91	MALE	NCD	BODREACT	BURN	2	0
45 CIV	DEC91	FEMALE	PATH	NEEDLE	NEEDLE	0	0
46 CIV	DEC91	FEMALE	NURSING	MISC	BURN	0	0
47 CIV	DEC91	FEMALE	NCD	CAUTBETW	MISC	0	0
48 CIV	DEC91	FEMALE	NURSING	STRAGNST	MISC	5	0
49 MIL	JAN92	MALE	NURSING	NEEDLE	NEEDLE	0	0
50 MIL	JAN92	MALE	NURSING	NEEDLE	NEEDLE	0	0
51 CIV	JAN92	MALE	NURSING	STRESS	MISC	0	0
52 CIV	JAN92	FEMALE	NURSING	NEEDLE	NEEDLE	0	0
53 MIL	JAN92	FEMALE	NURSING	NEEDLE	NEEDLE	0	0
54 MIL	JAN92	FEMALE	NURSING	STRUCKBY	MISC	0	0
55 MIL	JAN92	MALE	NURSING	NEEDLE	NEEDLE	0	0
56 CIV	JAN92	MALE	NCD	LIFTING	BACK	3	3
57 CIV	JAN92	FEMALE	PAD	SL_TR_FA	FALL	30	0

Appendix 1 - Fiscal Years 1992 and 1993 OSHA Form 200 Log

1	2	3	4	5	6	7	8
CAT	DATE	GENDER	DEPT	TYPEACC	INJTYPE	LWD	RWD
58	MIL	JAN92	MALE	NURSING	NEEDLE	NEEDLE	0 0
59	MIL	JAN92	FEMALE	PERS	SL_TR_FA	BACK	0 0
60	CIV	JAN92	FEMALE	RADIOL	BODREACT	MISC	0 7
61	CIV	JAN92	FEMALE	SURG	SHARP	SHARPS	0 0
62	STU	JAN92	MALE	SURG	NEEDLE	NEEDLE	0 0
63	CON	JAN92	FEMALE	LOG	STRUCKBY	MISC	0 0
64	CON	JAN92	FEMALE	LOG	NEEDLE	NEEDLE	0 0
65	CIV	JAN92	MALE	SURG	LIFTING	BACK	4 6
66	CIV	JAN92	MALE	NCD	SHARP	SHARPS	0 0
67	MIL	JAN92	FEMALE	NURSING	SHARP	SHARPS	0 0
68	MIL	JAN92	FEMALE	SURG	SHARP	SHARPS	0 0
69	CIV	JAN92	MALE	LOG	LIFTING	MISC	0 0
70	CIV	FEB92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
71	CIV	FEB92	FEMALE	LOG	PULLING	BACK	0 0
72	CIV	FEB92	MALE	NCD	PULLING	MISC	10 0
73	CON	FEB92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
74	MIL	FEB92	MALE	LOG	SL_TR_FA	BACK	1 14
75	CIV	FEB92	FEMALE	MED	STRUCKBY	MISC	0 0
76	CIV	FEB92	MALE	MED	BODREACT	MISC	0 14
77	CON	FEB92	MALE	LOG	NEEDLE	NEEDLE	0 0
78	MIL	FEB92	FEMALE	NURSING	SPLASH	MISC	0 0
79	CIV	FEB92	MALE	NURSING	LIFTING	MISC	0 0
80	CIV	FEB92	FEMALE	NURSING	STRUCKBY	MISC	0 0
81	CIV	FEB92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
82	CIV	FEB92	FEMALE	NURSING	SHARP	SHARPS	0 0
83	CIV	FEB92	FEMALE	NURSING	SL_TR_FA	FALL	0 1
84	CIV	FEB92	MALE	NURSING	CAUTBETW	MISC	0 0
85	CON	FEB92	FEMALE	NURSING	LIFTING	BACK	0 3
86	CIV	FEB92	FEMALE	NCD	CAUTBETW	MISC	0 0
87	CIV	FEB92	FEMALE	RMD	SL_TR_FA	FALL	0 0
88	CIV	FEB92	MALE	NURSING	SHARP	SHARPS	0 0
89	MIL	FEB92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
90	CIV	FEB92	FEMALE	NURSING	LIFTING	BACK	0 0
91	CIV	FEB92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
92	CIV	MAR92	FEMALE	LOG	STRUCKBY	MISC	0 0
93	CIV	MAR92	MALE	NCD	CAUTBETW	MISC	0 0
94	CON	MAR92	MALE	LOG	NEEDLE	NEEDLE	0 0
95	CIV	MAR92	MALE	NCD	BODREACT	MISC	27 0
96	CIV	MAR92	FEMALE	PATH	STRUCKBY	MISC	0 0
97	CIV	MAR92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
98	CON	MAR92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
99	MIL	MAR92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
100	CIV	MAR92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
101	MIL	MAR92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
102	MIL	MAR92	MALE	NURSING	NEEDLE	NEEDLE	0 0
103	MIL	MAR92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
104	CIV	MAR92	FEMALE	PATH	SHARP	SHARPS	0 0
105	MIL	MAR92	MALE	NURSING	SL_TR_FA	FALL	0 0
106	MIL	MAR92	FEMALE	NURSING	STRUCKBY	MISC	0 2
107	CIV	MAR92	FEMALE	OB_GYN	LIFTING	BACK	0 0
108	CIV	APR92	MALE	LOG	BODREACT	MISC	0 0
109	CIV	APR92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
110	CIV	APR92	FEMALE	PAD	SL_TR_FA	FALL	1 0
111	MIL	APR92	MALE	NURSING	NEEDLE	NEEDLE	0 0
112	CIV	APR92	MALE	NCD	SL_TR_FA	FALL	0 2
113	CIV	APR92	FEMALE	PATH	CAUTBETW	MISC	0 0
114	MIL	APR92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
115	CON	APR92	FEMALE	NURSING	SHARP	SHARPS	0 0
116	CIV	APR92	FEMALE	PAD	SL_TR_FA	FALL	0 0
117	CIV	APR92	MALE	LOG	LIFTING	MISC	0 0
118	MIL	APR92	MALE	NURSING	NEEDLE	NEEDLE	0 0
119	MIL	APR92	FEMALE	PATH	NEEDLE	NEEDLE	0 0

Appendix 1 - Fiscal Years 1992 and 1993 OSHA Form 200 Log

1	2	3	4	5	6	7	8
CAT	DATE	GENDER	DEPT	TYPEACC	INJTYPE	LWD	RWD
120	CIV	APR92	MALE	PAD	BODREACT	MISC	0 0
121	CIV	APR92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
122	CIV	APR92	FEMALE	PATH	NEEDLE	NEEDLE	0 0
123	CIV	APR92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
124	MIL	APR92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
125	MIL	APR92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
126	CIV	APR92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
127	CIV	MAY92	FEMALE	PAD	SL_TR_FA	BACK	0 0
128	CIV	MAY92	FEMALE	NCD	LIFTING	MISC	0 0
129	MIL	MAY92	MALE	NURSING	NEEDLE	NEEDLE	0 0
130	STU	MAY92	MALE	NURSING	NEEDLE	NEEDLE	0 0
131	CON	MAY92	FEMALE	MED	NEEDLE	NEEDLE	0 0
132	CIV	MAY92	FEMALE	NURSING	SL_TR_FA	FALL	2 0
133	MIL	MAY92	MALE	NURSING	NEEDLE	NEEDLE	0 0
134	MIL	MAY92	MALE	NURSING	NEEDLE	NEEDLE	0 0
135	MIL	MAY92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
136	CIV	MAY92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
137	CIV	MAY92	FEMALE	NURSING	STRAGNST	MISC	0 0
138	CIV	MAY92	FEMALE	NURSING	PULLING	BACK	4 0
139	MIL	MAY92	FEMALE	NURSING	STRUCKBY	EYE	0 0
140	CIV	MAY92	MALE	PATH	SHARP	SHARPS	0 0
141	CIV	MAY92	FEMALE	NURSING	MISC	MISC	0 0
142	MIL	JUN92	MALE	NURSING	NEEDLE	NEEDLE	0 0
143	CIV	JUN92	FEMALE	NCD	LIFTING	MISC	0 7
144	CIV	JUN92	MALE	NCD	SL_TR_FA	BACK	0 0
145	CIV	JUN92	FEMALE	NCD	SL_TR_FA	FALL	0 0
146	CIV	JUN92	MALE	LOG	PULLING	MISC	0 0
147	CON	JUN92	FEMALE	NURSING	STRUCKBY	MISC	0 0
148	CIV	JUN92	MALE	NURSING	SL_TR_FA	FALL	3 0
149	MIL	JUN92	MALE	NURSING	NEEDLE	NEEDLE	0 0
150	MIL	JUN92	MALE	NURSING	SL_TR_FA	FALL	0 0
151	VOL	JUN92	FEMALE	PAD	SL_TR_FA	FALL	0 0
152	MIL	JUN92	MALE	NURSING	SL_TR_FA	FALL	0 0
153	CIV	JUN92	FEMALE	NURSING	LIFTING	BACK	45 0
154	CIV	JUN92	MALE	NCD	LIFTING	MISC	0 10
155	CIV	JUN92	MALE	NURSING	STRAGNST	MISC	0 0
156	CIV	JUN92	MALE	NURSING	SHARP	SHARPS	0 0
157	CIV	JUN92	MALE	SURG	SHARP	SHARPS	0 0
158	CIV	JUN92	MALE	LOG	PULLING	MISC	0 0
159	CIV	JUN92	MALE	NCD	BODREACT	MISC	0 10
160	MIL	JUN92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
161	MIL	JUL92	MALE	NURSING	NEEDLE	NEEDLE	0 0
162	CIV	JUL92	FEMALE	PATH	SHARP	SHARPS	0 0
163	MIL	JUL92	MALE	PRIMCARE	NEEDLE	NEEDLE	0 0
164	CIV	JUL92	MALE	PATH	LIFTING	MISC	0 0
165	MIL	JUL92	MALE	RADIOIOL	NEEDLE	NEEDLE	0 0
166	CIV	JUL92	FEMALE	NURSING	SL_TR_FA	FALL	0 0
167	MIL	JUL92	FEMALE	NURSING	STRUCKBY	MISC	0 0
168	CIV	JUL92	FEMALE	NURSING	SL_TR_FA	FALL	0 0
169	CIV	JUL92	FEMALE	NURSING	SL_TR_FA	FALL	2 0
170	CIV	JUL92	FEMALE	MED	STRUCKBY	MISC	0 0
171	MIL	JUL92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
172	CIV	JUL92	FEMALE	NURSING	SL_TR_FA	FALL	0 0
173	CIV	JUL92	FEMALE	PATH	SHARP	SHARPS	0 0
174	CIV	AUG92	FEMALE	NCD	STRAGNST	MISC	0 2
175	CIV	AUG92	MALE	MED	LIFTING	MISC	0 0
176	CIV	AUG92	FEMALE	PSYCH	BODREACT	MISC	0 0
177	MIL	AUG92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
178	MIL	AUG92	MALE	NURSING	NEEDLE	NEEDLE	0 0
179	CIV	AUG92	MALE	NCD	LIFTING	BACK	10 0
180	CIV	SEP92	FEMALE	NCD	LIFTING	MISC	0 0
181	MIL	SEP92	MALE	NURSING	SHARP	SHARPS	0 0

Appendix 1 - Fiscal Years 1992 and 1993 OSHA Form 200 Log

1	2	3	4	5	6	7	8
CAT	DATE	GENDER	DEPT	TYPEACC	INJTYPE	LWD	RWD
182	MIL	SEP92	MALE	NURSING	NEEDLE	NEEDLE	0 0
183	MIL	SEP92	FEMALE	NURSING	EXPOSURE	EYE	0 0
184	CIV	SEP92	FEMALE	NCD	STRAGNST	MISC	0 0
185	CIV	SEP92	MALE	SURG	SHARP	SHARPS	0 0
186	CIV	SEP92	MALE	NCD	STRAGNST	MISC	0 0
187	CIV	SEP92	MALE	LOG	SL_TR_FA	FALL	1 0
188	MIL	OCT92	MALE	NURSING	STRUCKBY	MISC	0 0
189	CIV	OCT92	FEMALE	RTF	SL_TR_FA	FALL	0 0
190	CIV	OCT92	MALE	LOG	STRUCKBY	EYE	0 0
191	CIV	OCT92	MALE	NURSING	STRAGNST	MISC	1 0
192	MIL	OCT92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
193	CIV	OCT92	FEMALE	NURSING	STRAGNST	MISC	0 0
194	CIV	OCT92	FEMALE	NURSING	SL_TR_FA	FALL	1 0
195	CIV	OCT92	MALE	NCD	BODREACT	MISC	0 0
196	CIV	OCT92	MALE	NCD	STRAGNST	MISC	0 0
197	MIL	OCT92	FEMALE	PATH	SL_TR_FA	FALL	0 0
198	CIV	OCT92	FEMALE	NCD	STRUCKBY	EYE	0 0
199	CIV	OCT92	FEMALE	NCD	SL_TR_FA	FALL	0 14
200	CIV	OCT92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
201	CIV	OCT92	FEMALE	NURSING	SL_TR_FA	FALL	1 0
202	CON	NOV92	MALE	NURSING	STRUCKBY	MISC	0 0
203	CIV	NOV92	MALE	PATH	CAUTBETW	MISC	0 0
204	CIV	NOV92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
205	CIV	NOV92	MALE	IMD	SPLASH	EYE	0 0
206	MIL	NOV92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
207	CIV	NOV92	FEMALE	RADIOL	SL_TR_FA	FALL	0 0
208	CIV	NOV92	FEMALE	RADIOL	BODREACT	MISC	0 0
209	CIV	NOV92	FEMALE	NURSING	LIFTING	BACK	45 0
210	CIV	DEC92	FEMALE	NCD	BODREACT	MISC	0 0
211	MIL	DEC92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
212	MIL	DEC92	MALE	NURSING	NEEDLE	NEEDLE	0 0
213	CIV	DEC92	FEMALE	PAD	SL_TR_FA	FALL	0 0
214	MIL	DEC92	MALE	NURSING	NEEDLE	NEEDLE	0 0
215	CIV	DEC92	MALE	NURSING	NEEDLE	NEEDLE	0 0
216	CIV	DEC92	FEMALE	PAD	BODREACT	MISC	0 20
217	CIV	DEC92	FEMALE	NCD	SL_TR_FA	FALL	0 0
218	MIL	DEC92	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
219	CIV	JAN93	MALE	NCD	STRUCKBY	MISC	0 0
220	MIL	JAN93	MALE	NURSING	LIFTING	BACK	0 0
221	CIV	JAN93	FEMALE	PREVMED	EXPOSURE	MISC	0 0
222	CIV	JAN93	FEMALE	SURG	LIFTING	MISC	0 0
223	CON	JAN93	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
224	CIV	JAN93	FEMALE	PREVMED	EXPOSURE	MISC	0 0
225	CIV	JAN93	FEMALE	LOG	LIFTING	BACK	5 0
226	CIV	JAN93	FEMALE	NCD	LIFTING	BACK	0 0
227	MIL	JAN93	MALE	PATH	SHARP	SHARPS	0 0
228	CIV	FEB93	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
229	CIV	FEB93	FEMALE	PATH	SL_TR_FA	FALL	0 0
230	CIV	FEB93	FEMALE	PATH	STRUCKBY	MISC	0 0
231	CIV	FEB93	FEMALE	NCD	SHARP	SHARPS	0 0
232	MIL	FEB93	MALE	NURSING	NEEDLE	NEEDLE	0 0
233	CIV	FEB93	FEMALE	PAD	SL_TR_FA	FALL	0 0
234	CIV	FEB93	MALE	NURSING	STRESS	MISC	0 0
235	CON	FEB93	MALE	RADIOL	NEEDLE	NEEDLE	0 0
236	CIV	FEB93	FEMALE	PAD	SL_TR_FA	FALL	0 1
237	MIL	FEB93	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
238	MIL	FEB93	FEMALE	NURSING	SL_TR_FA	FALL	0 3
239	CIV	FEB93	FEMALE	NURSING	BODREACT	BACK	0 0
240	MIL	FEB93	MALE	NURSING	NEEDLE	NEEDLE	0 0
241	CIV	FEB93	FEMALE	NURSING	SHARP	SHARPS	0 0
242	MIL	FEB93	FEMALE	NURSING	SPLASH	EYE	0 0
243	MIL	FEB93	MALE	NCD	STRUCKBY	MISC	0 0

Appendix 1 - Fiscal Years 1992 and 1993 OSHA Form 200 Log

1	2	3	4	5	6	7	8
CAT	DATE	GENDER	DEPT	TYPEACC	INJTYPE	LWD	RWD
244	MIL	MAR93	MALE	NURSING	SPLASH	MISC	0 0
245	CIV	MAR93	MALE	NURSING	NEEDLE	NEEDLE	0 0
246	CIV	MAR93	FEMALE	NCD	STRAGNST	MISC	0 0
247	MIL	MAR93	MALE	NURSING	STRUCKBY	MISC	0 0
248	MIL	MAR93	MALE	NURSING	SHARP	SHARPS	0 0
249	MIL	MAR93	MALE	NURSING	NEEDLE	NEEDLE	0 0
250	CIV	MAR93	FEMALE	LOG	STRUCKBY	MISC	0 0
251	CIV	MAR93	FEMALE	PATH	STRUCKBY	MISC	0 0
252	CIV	MAR93	FEMALE	PATH	NEEDLE	NEEDLE	0 0
253	CIV	MAR93	MALE	NCD	LIFTING	BACK	0 5
254	CIV	MAR93	MALE	RADIOL	LIFTING	MISC	0 5
255	CIV	MAR93	MALE	NURSING	LIFTING	BACK	0 0
256	MIL	MAR93	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
257	CIV	MAR93	FEMALE	NURSING	BODREACT	BACK	0 0
258	CIV	MAR93	MALE	SURG	STRUCKBY	MISC	0 0
259	STU	MAR93	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
260	CIV	MAR93	MALE	NURSING	BODREACT	MISC	0 0
261	CIV	APR93	FEMALE	NURSING	SL TR FA	FALL	0 7
262	CIV	APR93	FEMALE	RADIOL	CAUTBETW	MISC	0 0
263	CIV	APR93	FEMALE	NCD	CAUTBETW	MISC	0 0
264	CIV	APR93	FEMALE	NCD	STRUCKBY	MISC	0 0
265	CIV	APR93	FEMALE	LOG	STRUCKBY	MISC	0 0
266	CIV	APR93	FEMALE	NURSING	BODREACT	BACK	0 7
267	CIV	APR93	FEMALE	PAD	BODREACT	MISC	7 0
268	CON	APR93	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
269	CIV	APR93	MALE	LOG	BODREACT	MISC	0 0
270	CIV	MAY93	MALE	LOG	BODREACT	MISC	0 0
271	CIV	MAY93	MALE	NURSING	STRUCKBY	MISC	0 0
272	CIV	MAY93	FEMALE	PAD	BODREACT	MISC	0 0
273	CON	MAY93	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
274	MIL	MAY93	FEMALE	RADIOL	CAUTBETW	BACK	0 0
275	CIV	MAY93	MALE	LOG	BODREACT	BACK	0 0
276	CIV	MAY93	FEMALE	NCD	SL TR FA	FALL	1 0
277	MIL	MAY93	MALE	PATH	SHARP	SHARPS	0 0
278	CIV	MAY93	FEMALE	PAD	BODREACT	BACK	1 0
279	CIV	MAY93	MALE	IMD	SL TR FA	FALL	0 2
280	MIL	MAY93	MALE	SURG	SPLASH	EYE	0 0
281	MIL	MAY93	MALE	NURSING	NEEDLE	NEEDLE	0 0
282	CON	JUN93	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
283	CIV	JUN93	FEMALE	NURSING	STRUCKBY	MISC	0 0
284	CIV	JUN93	FEMALE	RADIOL	BODREACT	MISC	0 0
285	CIV	JUN93	MALE	NCD	BODREACT	BACK	0 0
286	CIV	JUN93	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
287	MIL	JUN93	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
288	MIL	JUN93	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
289	MIL	JUN93	FEMALE	PREVMED	CAUTBETW	MISC	0 0
290	CIV	JUN93	FEMALE	PAD	SL TR FA	BACK	0 0
291	MIL	JUN93	FEMALE	NURSING	STRUCKBY	MISC	0 0
292	STU	JUL93	MALE	NURSING	NEEDLE	NEEDLE	0 0
293	MIL	JUL93	MALE	NURSING	NEEDLE	NEEDLE	0 0
294	MIL	JUL93	MALE	MED	NEEDLE	NEEDLE	0 0
295	CIV	JUL93	FEMALE	NURSING	NEEDLE	NEEDLE	0 0
296	CON	JUL93	FEMALE	NURSING	SPLASH	MISC	0 0
297	CON	JUL93	FEMALE	RADIOL	STRUCKBY	MISC	0 0
298	CIV	JUL93	MALE	LOG	CAUTBETW	MISC	0 30
299	CIV	JUL93	MALE	DCI	STRUCKBY	MISC	0 5
300	CIV	JUL93	FEMALE	NCD	STRUCKBY	MISC	0 0
301	CIV	JUL93	FEMALE	NCD	STRUCKBY	MISC	0 0
302	CIV	JUL93	MALE	PERS	SL TR FA	FALL	0 0
303	MIL	JUL93	FEMALE	NURSING	STRUCKBY	MISC	0 0
304	CIV	JUL93	FEMALE	NURSING	BODREACT	BACK	4 0
305	CIV	JUL93	FEMALE	PATH	STRUCKBY	MISC	0 0

Appendix 1 - Fiscal Years 1992 and 1993 OSHA Form 200 Log

1	2	3	4	5	6	7	8
CAT	DATE	GENDER	DEPT	TYPEACC	INJTYPE	LWD	RWD
306	CIV	AUG93	FEMALE	NURSING	BODREACT MISC	0	0
307	CIV	AUG93	MALE	NURSING	EXPOSURE MISC	0	0
308	MIL	AUG93	FEMALE	NURSING	SHARP SHARPS	0	0
309	CIV	AUG93	FEMALE	PAD	SL TR FA FALL	0	0
310	CIV	AUG93	FEMALE	PREVMED	BODREACT MISC	0	0
311	CON	AUG93	MALE	RADIOL	SL TR FA BACK	0	0
312	MIL	AUG93	FEMALE	RADIOL	CAUTBETW MISC	0	0
313	MIL	AUG93	FEMALE	RADIOL	STRUCKBY MISC	0	0
314	CIV	AUG93	FEMALE	SURG	BODREACT MISC	0	0
315	CIV	AUG93	FEMALE	NURSING	NEEDLE NEEDLE	0	0
316	MIL	AUG93	FEMALE	NURSING	SHARP SHARPS	0	0
317	MIL	AUG93	MALE	NURSING	NEEDLE NEEDLE	0	0
318	MIL	SEP93	MALE	NURSING	NEEDLE NEEDLE	0	0
319	CIV	SEP93	FEMALE	NURSING	BODREACT MISC	0	0
320	CIV	SEP93	FEMALE	NURSING	NEEDLE NEEDLE	0	0
321	CIV	SEP93	FEMALE	NURSING	STRUCKBY MISC	3	0
322	CIV	SEP93	FEMALE	NURSING	SL TR FA FALL	0	3
323	CIV	SEP93	FEMALE	NURSING	BODREACT BACK	0	0
324	CIV	SEP93	FEMALE	PAD	BODREACT BACK	0	0
325	MIL	SEP93	MALE	NURSING	NEEDLE NEEDLE	0	0
326	MIL	SEP93	MALE	PATH	SHARP SHARPS	0	0

Appendix 2 - Accident Log by Category

DATE	TOTACC	MIL	CIV	CON	STU	MALE	FEMALE	NURSING	LOG	PSYCH	PATH	SURG
10/91	16	5	9	1	1	3	13	9	2	1	2	1
11/91	19	9	9	1	0	8	11	10	2	0	1	1
12/91	13	5	8	0	0	6	7	7	0	0	2	0
1/92	21	9	9	2	1	10	11	9	3	0	0	4
2/92	22	3	16	3	0	7	15	14	3	0	0	0
3/92	16	6	8	2	0	5	11	9	2	0	2	0
4/92	19	6	12	1	0	6	13	10	2	0	3	0
5/92	15	5	8	1	1	5	10	11	0	0	1	0
6/92	19	5	13	1	0	13	6	10	2	0	0	1
7/92	13	5	8	0	0	4	9	7	0	0	3	0
8/92	6	2	4	0	0	3	3	2	0	1	0	0
9/92	8	3	5	0	0	5	3	3	1	0	0	1
92 TOT	187	63	109	12	3	75	112	101	17	2	14	8
10/92	14	3	11	0	0	5	9	7	1	0	1	0
11/92	8	1	6	1	0	3	5	4	0	0	1	0
12/92	9	4	5	0	0	3	6	5	0	0	0	0
1/93	9	2	6	1	0	3	6	2	1	0	1	1
2/93	16	6	9	1	0	5	11	9	0	0	2	0
3/93	17	5	11	0	1	10	7	10	1	0	2	1
4/93	9	0	8	1	0	1	8	3	2	0	0	0
5/93	12	4	7	1	0	7	5	3	2	0	1	1
6/93	10	4	5	1	0	1	9	6	0	0	0	0
7/93	14	3	8	2	1	6	8	6	1	0	1	0
8/93	12	5	6	1	0	3	9	6	0	0	0	1
9/93	9	3	6	0	0	3	6	7	0	0	1	0
93 TOT	139	40	88	9	2	50	89	68	8	0	10	4
TOTAL	326	103	197	21	5	125	201	169	25	2	24	12

Appendix 2 - Accident Log by Category

OB/GYN	NCD	PHARM	PAD	PEDS	PERS	RADIOI	MED	RMD	PRIMCARE	RTF	IMD	PREVMED
1	0	0	0	0	0	0	0	0	0	0	0	0
0	2	1	1	1	0	0	0	0	0	0	0	0
0	3	1	0	0	0	0	0	0	0	0	0	0
0	2	0	1	0	1	1	0	0	0	0	0	0
0	2	0	0	0	0	0	2	1	0	0	0	0
1	2	0	0	0	0	0	0	0	0	0	0	0
0	1	0	3	0	0	0	0	0	0	0	0	0
0	1	0	1	0	0	0	0	1	0	0	0	0
0	5	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	1	0	1	0	0	0
0	2	0	0	0	0	0	1	0	0	0	0	0
0	3	0	0	0	0	0	0	0	0	0	0	0
2	23	2	7	1	1	2	5	1	1	0	0	0
0	4	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	2	0	0	0	0	1	0
0	2	0	2	0	0	0	0	0	0	0	0	0
0	2	0	0	0	0	0	0	0	0	0	0	2
0	2	0	2	0	0	1	0	0	0	0	0	0
0	2	0	0	0	0	1	0	0	0	0	0	0
0	2	0	1	0	0	1	0	0	0	0	0	0
0	1	0	2	0	0	1	0	0	0	0	1	0
0	1	0	1	0	0	1	0	0	0	0	0	1
0	2	0	0	0	1	1	1	0	0	0	0	0
0	0	0	1	0	0	3	0	0	0	0	0	1
0	0	0	1	0	0	0	0	0	0	0	0	0
0	18	0	10	0	1	11	1	0	0	1	2	4
2	41	2	17	1	2	13	6	1	1	1	2	4

Appendix 2 - Accident Log by Category

DCI	NEEDLE	PULLING	SHARP	SL/TR/FA	SPLASH	STRESS	STRAGST	STRKBY	BODRACT
0	8	0	1	2	1	0	1	2	0
0	7	0	0	2	2	0	0	3	0
0	6	0	1	0	0	0	1	1	2
0	8	0	4	2	0	1	0	2	1
0	6	2	2	3	1	0	0	2	1
0	8	0	1	1	0	0	0	3	1
0	11	0	1	3	0	0	0	0	2
0	7	1	1	2	0	0	1	1	0
0	3	2	2	6	0	0	1	1	1
0	4	0	2	4	0	0	0	2	0
0	2	0	0	0	0	0	1	0	1
0	1	0	2	1	0	0	2	0	0
0	71	5	17	26	4	1	7	17	9
0	2	0	0	5	0	0	3	3	1
0	2	0	0	1	1	0	0	1	1
0	5	0	0	2	0	0	0	0	2
0	1	0	1	0	0	0	0	1	0
0	5	0	2	4	1	1	0	2	1
0	5	0	1	0	1	0	1	4	2
0	1	0	0	1	0	0	0	2	3
0	2	0	1	2	1	0	0	1	4
0	4	0	0	1	0	0	0	2	2
1	4	0	0	1	1	0	0	6	1
0	2	0	2	2	0	0	0	1	3
0	3	0	1	1	0	0	0	1	3
1	36	0	8	20	5	1	4	24	23
1	107	5	25	46	9	2	11	41	32

Appendix 2 - Accident Log by Category

CAUBTW	EXPOSE	LIFTING	MISC	BACK	BURNEYE	FALL	NEEDLE	SHARPS	MISC	LWD	RWD
0	0	1	0	1	0	2	8	1	2	0	15
1	0	2	2	2	0	3	7	0	5	3	5
1	0	0	1	0	2	0	6	1	4	7	0
0	0	3	0	3	0	0	8	4	5	37	16
1	0	3	0	4	0	0	6	2	8	11	32
1	0	1	0	1	0	0	8	1	5	27	2
1	0	1	0	0	0	0	11	1	4	1	2
0	0	1	1	2	0	1	7	1	3	6	0
0	0	3	0	2	0	0	3	2	7	45	27
0	0	1	0	0	0	0	4	4	2	3	0
0	0	2	0	1	0	0	2	0	3	10	2
0	1	1	0	0	0	1	1	2	3	1	0
5	1	19	4	16	2	7	71	17	52	150	101
0	0	0	0	0	0	2	5	0	5	3	14
1	0	1	0	1	0	1	2	0	3	45	0
0	0	0	0	0	0	0	5	0	2	0	20
0	2	4	0	3	0	0	1	1	4	5	0
0	0	0	0	1	0	1	4	5	2	3	0
0	0	3	0	3	0	0	5	1	8	0	10
2	0	0	0	1	0	0	1	0	6	7	14
1	0	0	0	3	0	1	2	1	3	2	2
1	0	0	0	2	0	0	4	0	4	0	0
1	0	0	0	1	0	0	4	0	8	4	35
1	1	0	0	1	0	0	2	2	6	0	0
0	0	0	0	2	0	0	3	1	2	3	3
7	3	8	0	18	0	5	36	8	54	69	102
12	4	27	4	34	2	12	107	25	106	219	203

Appendix 3 - Fiscal Year 1992 Accidents by Department

	NEEDLE	PULL	SHARP	SL/TR/FA	SPLASH	STRESS	STRAG	STRKBY	BODRACT	CAUBT	EXPOSE	LIFT	MISC
NURSING	56	1	6	10	3	1	4	8	0	1	1	7	3
LOG	4	3	0	3	0	0	0	4	1	0	0	2	0
PSYCH	0	0	0	1	0	0	0	0	1	0	0	0	0
PATH	4	0	6	0	0	0	0	2	0	1	0	1	0
SURG	2	0	4	0	1	0	0	0	0	0	0	1	0
OB/GYN	1	0	0	0	0	0	0	0	0	0	0	1	0
NCD	0	1	1	3	0	0	3	1	3	4	0	6	1
PHARM	0	0	0	1	0	0	0	0	1	0	0	0	0
PAD	0	0	0	6	0	0	0	0	1	0	0	0	0
PEDS	1	0	0	0	0	0	0	0	0	0	0	0	0
PERS	0	0	0	1	0	0	0	0	0	0	0	0	0
RADIOL	1	0	0	0	0	0	0	0	1	0	0	0	0
MED	1	0	0	0	0	0	0	2	1	0	0	1	0
RMD	0	0	0	1	0	0	0	0	0	0	0	0	0
PRIMCARE	1	0	0	0	0	0	0	0	0	0	0	0	0
RTF	0	0	0	0	0	0	0	0	0	0	0	0	0
IMD	0	0	0	0	0	0	0	0	0	0	0	0	0
PREVMED	0	0	0	0	0	0	0	0	0	0	0	0	0
DCI	0	0	0	0	0	0	0	0	0	0	0	0	0
	BACK	BURN	EYE	FALL	NEEDLE	SHARPS	MISC	LWD	RWD				
NURSING	7	1	4	10	56	6	17	61	11				
LOG	2	0	1	2	4	0	8	2	14				
PSYCH	0	0	0	1	0	0	1	0	15				
PATH	0	0	1	0	4	6	3	0	0				
SURG	1	0	1	0	2	4	0	4	6				
OB/GYN	1	0	0	0	1	0	0	0	0				
NCD	3	1	0	2	0	1	16	52	34				
PHARM	0	0	0	1	0	0	1	0	0				
PAD	1	0	0	5	0	0	1	31	0				
PEDS	0	0	0	0	1	0	0	0	0				
PERS	1	0	0	0	0	0	0	0	0				
RADIOL	0	0	0	0	1	0	1	0	7				
MED	0	0	0	0	1	0	4	0	14				
RMD	0	0	0	1	0	0	0	0	0				
PRIMCARE	0	0	0	0	1	0	0	0	0				
RTF	0	0	0	0	0	0	0	0	0				
IMD	0	0	0	0	0	0	0	0	0				
PREVMED	0	0	0	0	0	0	0	0	0				
DCI	0	0	0	0	0	0	0	0	0				

Appendix 4 - Fiscal Year 1993 Accidents by Department

	NEEDLE	PULL SHARP	SL/TR/FA	SPLASH	STRESS	STRAGST	STRKBY	BODRACT	CAUBT	EXPOSE	LIFT	MISC
NURSING	33	0	4	5	3	1	2	8	0	1	3	0
LOG	0	0	0	0	0	0	0	3	1	0	1	0
PSYCH	0	0	0	0	0	0	0	0	0	0	0	0
PATH	1	0	3	2	0	0	0	3	0	1	0	0
SURG	0	0	0	0	1	0	0	1	1	0	1	0
OB/GYN	0	0	0	0	0	0	0	0	0	0	0	0
NCD	0	0	1	3	0	0	2	6	3	1	0	2
PHARM	0	0	0	0	0	0	0	0	0	0	0	0
PAD	0	0	0	5	0	0	0	0	5	0	0	0
PEDS	0	0	0	0	0	0	0	0	0	0	0	0
PERS	0	0	0	1	0	0	0	0	0	0	0	0
RADIOL	1	0	0	2	0	0	0	2	2	3	0	1
MED	1	0	0	0	0	0	0	0	0	0	0	0
RMD	0	0	0	0	0	0	0	0	0	0	0	0
PRIMCARE	0	0	0	0	0	0	0	0	0	0	0	0
RTF	0	0	0	1	0	0	0	0	0	0	0	0
IMD	0	0	0	1	1	0	0	0	0	0	0	0
PREVMED	0	0	0	0	0	0	0	0	1	1	2	0
DCI	0	0	0	0	0	0	0	1	0	0	0	0
	BACK	BURN	EYE	FALL	NEEDLE	SHARPS	MISC	LWD	RWD			
NURSING	8	0	1	5	33	4	17	55	20			
LOG	2	0	1	0	0	0	5	5	30			
PSYCH	0	0	0	0	0	0	0	0	0			
PATH	0	0	0	2	1	3	4	0	0			
SURG	0	0	1	0	0	0	3	0	0			
OB/GYN	0	0	0	0	0	0	0	0	0			
NCD	3	0	1	3	0	1	10	1	19			
PHARM	0	0	0	0	0	0	0	0	0			
PAD	3	0	0	4	0	0	3	8	21			
PEDS	0	0	0	0	0	0	0	0	0			
PERS	0	0	0	1	0	0	0	0	0			
RADIOL	2	0	0	1	1	0	7	0	5			
MED	0	0	0	0	1	0	0	0	0			
RMD	0	0	0	0	0	0	0	0	0			
PRIMCARE	0	0	0	0	0	0	0	0	0			
RTF	0	0	0	1	0	0	0	0	0			
IMD	0	0	1	1	0	0	0	0	2			
PREVMED	0	0	0	0	0	0	4	0	0			
DCI	0	0	0	0	0	0	1	0	5			

Appendix 5 - Accident Forecast

Exponential smoothing with linear trend for osha200						Page: 1
Period	Act. Demand	F(t)	T(t)/W(t)	I(t)	Forecast	Error
1	48	48	0			
2	59	52.95000	0		48	-11
3	53	52.97250	0		52.95000	-.049999
4	27	41.28487	0		52.97250	25.97250
5	31	36.65668	0		41.28487	10.28487
6	42	39.06117	0		36.65668	-5.34332
7	31	35.43364	0		39.06117	8.061173
8	35	35.23850	0		35.43364	.4336433
9					35.23850	
10					35.23850	
MAD = 8.735072 MSD = 142.1534 Bias = 4.051267 R-square = 0 $\hat{\alpha}(\alpha) = 0.450$ $\hat{\alpha}(\beta) = 0.000$ Search criterion: MAD						

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